**From:** uk2zero@gmail.com,
**To:** greensladeaj@aol.com,
**Subject:** [Test] Issue 2: A Fairer, Greener Future
**Date:** Sun, 4 Dec 2022 19:42

---

# Labour International CLP Industry Working Group/uk2zero

View this email in your browser

# uk2zero Newsletter

Net Zero Innovation, Events & Research News

## Issue 2: A Fairer, Greener Future :

***A Response to 2022 Labour Party Conference Climate Pledges.***

November 2022

## About

The second issue of the uk2zero Newsletter is dedicated to an analysis of Labour's climate policies announced at the 2022 Conference.

UK2Zero absolutely support the ambitious targets set by Labour and their current position on greening the economy, levelling up and the Climate Crisis This paper looks at the many schemes in operation both in the UK and in Europe and the research already under way to show potential for expansion.

Everyone with serious interest in the development of Labour's climate policies and their presentation in the next Labour Manifesto should read this.

---

## Introduction

Leadership Climate Promises made at the recent 2022 Labour Party Conference positively responded to a key electoral priority: Climate Change.

Welcome commitments were made to public investment in decarbonisation, publicly managed investment finance, effective regulation, green-led levelling-up, and the possibility of public

ownership. Ambitious targets were set out by Rachael Reeves, Keir Starmer and Ed Miliband for green investment in retrofitting, solar and wind power expansion, and tidal power.

It painted inspirational picture of a Britain actively levelling up, enhancing local wealth, reducing householder outgoings and creating green jobs; producing 'home-grown' green technologies within a Green Industrial Revolution in which Nuclear and Carbon Capture and Storage also featured.

A 'Bridge Strategy' like many designed by developed nations, it includes a gamut of approaches to Climate Control: lowering carbon emissions, capturing atmospheric carbon, retaining limited fossil fuel generation, expanding productive technologies like nuclear. Like most 'Bridge Strategies' it stands alone, fighting shy of colouring all policies in green hue.

But as Climate Change morphs into Crisis and its scale and scope exponentially grows, it is overtaking measures to control it. War and Climate Crisis have triggered energy insecurity and drought, and administrations are turning to fossil fuels for relief. Speed is fast becoming the name of the game.

Many UK local authority, 'Local GND' and European climate initiatives, side-lined during Conference, exploit readily available, accessible and affordable 'local' green and renewable energy resources, which can be speedily introduced. These could drive Labour's ambitions forward.

**Local 'GND' and European initiatives offer the means to accelerate our pursuit of carbon zero. They deserve our serious attention.**

Climate experts substantiate our perspective. Professor Johan Rockstom, Director of Potsdam Institute for Climate Impact Research, Germany, warns that although "the world is very close to irreparable damage", emissions that must halve by 2030 to meet the 1.5 degree target, continue to rise with the post-Covoid increase in demand and Russo-Ukrainian war.

António Guterres, UN Secretary General, sounds the alarm, observing our relentless approach to "economy-destroying levels of global heating.

Inger Anderson, head of the UN Environment Programme (UNEP), insists that the energy crisis must be used to speed-up delivery of a low-carbon economy".

Professor Myles Allen of Oxford University demands, "why are we only talking about transition and not about obliging highly profitable industry to clean-up the mess caused by their products."

At long last a Labour government seems possible: this opportunity must not be squandered. Labour must win and deliver on its green ambitions.

We need much already contained within Labour's existent strategy. But circumstances are overtaking us. We also need to ensure that the strategy itself it is broad enough and bold enough to deliver; it must be built upon the deepest most resilient foundations, shaped by the most extensive and incisive investigation into each and every decarbonisation possibility. Then

it will inform further decisions that might provide the speediest, soundest solutions available in ways which offer the very best value for money and deliver the most affordable energy to the population.

---

## Labour's 2022 Conference Climate Policies

Keir Starmer, Rachael Reeves, and Ed Miliband determinedly 'Went for Green', in their Opening Speeches.

Keir Starmer's Green Dream was ambitious: zero carbon by 2030. But his admission that coal might prove a necessary 'fall-back option' sounds discordant beside the hazard warnings issued by Climate experts. It appears inconsistent with Labour ambitions to take a leading role in Climate strategy. And it certainly fails to challenge the return to fossil fuel occasioned by post-Covoid increases in demand aggravated by Russo-Ukrainian war energy supply issues.

Energy policy has not been Starmer's to set. But it will be in his hands within a future Labour government. Then a strong example will need to be provided by a Party that has expressly 'gone for green'. Options other than coal, oil and gas consumption are available and must be embraced in the interests of all our futures.

Ed Miliband insisted that our three predominant crisis: energy, cost of living and climate, were all linked to one cause, carbonisation, announcing that Labour intended to provide solutions - (Stronger Together, A Fairer Greener Future)

- A windfall tax;
- An accelerated carbon zero plan to make Britain the first major country in the world to set and achieve the target of zero-carbon power by 2030.
- An extensive insulation programme financed by £60 billion over a decade, would "insulate 19 million cold, draughty homes, saving £1000 off bills, cutting carbon emissions, led by our brilliant Labour local authorities." Insulation finance would come from Labour's Climate Investment Pledge, spent in such a way as to create well-paid jobs in every region of the country."

He looked forward to a Green Industrial Revolution led by Labour and its Green New Deal - (the sole mention of Corbyn's legacy). Britain would become "a clean energy superpower" with its Electric Vehicle (EV) Revolution, green steel production and decarbonised industry fuelled by global wind and solar energy.

On-shore wind power would double; solar, treble; off-shore wind power quadruple, yielding £93bn savings and £475 off householder bills by 2030 and zero carbon emissions. Again bills would fall since "price of solar and wind energy is nine times less than that of gas" (Ed Miliband Conference Speech. Labour Party 26th September 2022).

Rachael Reeves announced that she would be "Britain's First Green Chancellor" and introduce a 'Green Prosperity Plan'. People would have a share in her new 'National Wealth Fund', which would invest in UK production of green technologies, many currently imported, creating good jobs and enhancing energy security. £28 billion a year would be invested in green energy. Investment would go into into three renewable energy sources: tidal, solar and wind; plus nuclear power, hydrogen and carbon capture. Five thousand new jobs in solar, tidal, hydrogen and nuclear energy development would be created. Electric batteries would become UK produced in factories spread across the land. Carbon capture and storage facilities would be developed in Grangemouth, West Wales, Humber, Teeside and Mersyside . Wind turbines would be UK manufactured.

Anticipating that wealth would flow back into communities and high streets, be invested in Britain's future was, she concluded, a "real plan for levelling-up" (Rachael Reeves Labour Party Conference Speech 2022).

The Chancellor-in-Waiting and Ed Miliband broadcast much welcome news indeed. Some jewels in their coffers offer far better value for money than others; some can be speedily implemented, others remain longer term prospects. Other options that chime perfectly with Labours ambitions to concomitantly tackle The Cost of Living, Energy and Climate Crisis plus Levelling-Up inequalities, are excluded. Why? Many feature in council climate initiatives.

Climate Change policies announced from the Conference platform, represent a 'bridge' strategy like others taken by a number of developed nations in their quest for net zero; intended to bridge the gap separating a fossil fuel, from a zero carbon economy. Whilst renewable energy generation rises, carbon-free nuclear power will hold energy production steady, fossil fuel power will still be generated and carbon capture and storage will begin to mop up first past, then current, carbon emissions. Countries considering "how to rapidly reduce carbon emissions have taken on an all-of-the-above attitude that the world, and especially the US, must include all technical solutions, including carbon capture, extracting more fossil fuel, and keeping nuclear plants running as a bridge to carbon reduction" (Dina Raso and Greg Williams. 'Climate Money Watchdog. October 2022). Its a mix intended to hedge all bets.

However a reputable segment of the research community, argues, as do we below, against nuclear and carbon capture and storage technological development and expansion, favouring rapid development of a wider renewable energy mix instead. Our proposals cast the net yet wider, include other green energies such as waste latent and geothermal heat, as certain local authority climate programmes have done, and that others could, replicate.

Professor Mark Jacobson, known in certain quarters as responsible for the American Green New Deal, together with his Stanford University team, has found **fast transition best effected using only renewable energy sources and excluding other infrastructure heavy, slower and more expensive 'bridge technologies'**. He found 145 nations might meet their carbon goals via universal electrification, exclusively using renewable technologies: "off and on shore wind electricity, solar panels for rooftops and power plants, concentrated

solar power, solar heat, geothermal electricity and heat, hydroelectricity, and small amounts of tidal and wave electricity. (Jacobson in Dina Raso and Greg Williams. 'Climate Money Watchdog. October 2022)

Rupert Way of The Institute for New Economic Thinking and Smith School of Enterprise and the Environment challenges IPCC and ARB claims "that the further decarbonisation needed to provide more than a 67% chance of keeping warming below 2 degrees Celsius would equal a GDP loss in 2050 of 1.3% to 2.7%. (Empirically grounded technology forecasts and the energy transition. Jule Journal Vol.6. Issue 9. 21 September 2022. pp 20567-2082) Instead he finds that "**rapid green energy transition will likely result in overall net savings of many trillions of dollars—even without accounting for climate damages or co-benefits of climate policy.**" (Jules Journal as above). Fast transition is cheaper because energy costs fall sooner and savings accrue over a longer time period.

Labour's Climate Change policies represent a firm foundation, an inspiring approach that set it apart on s high pinnacle beside the Conservative government's 'low'. We trust that Labour will give serious consideration the kind of research conducted by Jacobson and Way; continually review options and developments, and extend consultations with Labour members, affiliated trade unions and front bench MPs, remaining open to amendment of its innovative and progressive climate policies in this all important period leading up to the next General Election.

---

## Labour Outshines Conservative Climate Strategy.

Labour's green promises sharply distinguished the Party, from the short-lived Truss-led Conservative government which sounded the retreat from any shade of green whatever. But they do still share Conservative affection for nuclear power, carbon capture and storage. Better perhaps to have less pricey equally viable green alternatives in their basket for when they discover just how deep an economic black hole the Tories have dug.

Truss meant to lift the fracking ban, (reversing in the process as Ed Miliband commented, a ban imposed by her own party in 2019), intensify the exploitation of North Sea oil and gas to extract, enthused Rees-Mogg, "every drop of oil and gas", ban solar arrays from agricultural land in recognition of a growing food crisis, and ban wind turbines from on-shore locations.
A new state enemy was defined by the PM; an 'anti-growth coalition' which included offenders as inoffensive as the Council for the Protection of Rural England and the RSPB and as legitimate as Extinction Rebellion . Labour should ignore this delusory idea rather than address it.

Our previous PM had one point – food security is an important, under-broadcast issue. But the devil in in the detail. Breton farming practice – the installation of solar arrays mounted upon flexible stands, high enough to permit the passage of agricultural machinery, could profitably have been be part of Labour's riposte.

'Green Levelling-Up, Ground Up', might be an accurate description of the green economics Rachael Reeves championed at Conference through her plans to create employment opportunities and wealth via investment in targeted industries. It certainly synergises with the Community Wealth Building undertaken by Labour local

authorities such as Preston, and ‘Local GND’ strategies pursued by Local Authorities like Manchester, Tyneside, West Midlands, Bristol and many others, who have spearheaded development in green initiatives to enrich their residents and green their localities.

Labour’s approach to social and economic issues that looked to micro-economic investments to resolve both climate and levelling-up issues at industrial level, was quite distinct from that of Truss and Co. who opted for macro-economic Trickling-Down’: an approach long since discarded.

Rishi Sunak, the very recently elected third Conservative PM this year, is evidently deeply in thrall to the hard Tory right as evidenced by his retention of Truss’s Health Secretary Theresa Coffey as Secretary of State for Environment, Food and Rural Affairs (DEFRA) and re-appointment of Suella Braverman as Home Secretary despite her recent tarnishing – accused of leaking information from a department which still considers her a very ‘unsafe pair of hands’ indeed. Previously, hard-right MPs secured Truss, not Sunak, the Prime Ministership. Sunak lost. He now tows hard-right ‘anti-green’ lines. He, the UK Prime Minister, would not (at first) attend COP 27 in Egypt and will uphold the ban on King Charles’ attendance. Graham Stuart, the new Climate Minister, known for his insistence that Britain boasts “the greenest oil and gas”, has no Cabinet place. Only demoted Alok Sharmer, also outside Cabinet, plus-one: Boris Johnson, will go. As Ed Miliband commented, Sunak has displayed “a massive failure of Climate leadership”.

Its hard to quantify cost differentials between Labour and Tory climate policy. Mr Sunak’s has yet to be determined. But his determination to lower national debt by a figure that would finance substantial Climate Control measures, is telling. Likewise his apparent reluctance to introduce an effective and higher Windfall Tax. The one he introduced during Johnson’s administration, allows corporations to substantially lower their liability; offsetting it against North Sea investments -de-commissioning for example.

Preferences and policies associated with Conservative government figureheads, like Sunak, are becoming more and more transparently aligned with private industries that make huge company profits and shareholder pay-outs, like North sea oil and gas corporations. Their policies enabled Shell profits to top £25b by by the end of just the third-quarter of 2022, more buy-backs and dividend hikes; more incentives for extensive off-shore oil and gas field development. Not only does this make the rich, richer; it raises their stakes in the status quo. The Tory Party favour big business whose huge profits all too often worm their way out of tax liabilities and into shareholder pockets and buy-backs. (Economics. The choice between cutting public services and taxing windfall profits is not hard. The Guardian 27.10.2022)

Low carbon and renewable energy policies are doing a great deal to establish Labour as the substantive Party of People and Planet They are clearly distinguished from Conservative government determination to diminish climate control commitments regardless of cost to the planet, and to reduce the national debt at their expense of UK working people.

These policies could also enable Labour to proffer an acceptable face of frugality instead of the unacceptable austerity the Tories threaten to impose in their determination to lower national debt. Stanford professor Mark Jacobson showed that including a more extensive number of renewables and dropping slower more cumbersome and expensive infrastructural ones can form a speedy, cheaper and highly effective pathway to carbon zero. . By following in their footsteps without necessarily replicating their approaches verbatim, Labour could offer people ‘more for less’.

Geothermal power can be delivered at a fraction of the cost – around 25% of the cost of a nuclear power station. Tidal power, which we greatly favour and is happily included in Labour's plan comes in much cheaper than nuclear too. Renewables and green energies – waste, latent, geothermal and Combined Heat and Power can all provide more for less – the ultimate test of frugal government!

Finally - 'the politics of energy technologies'. Conservative energy policy set upon domestic and industrial heat pumps and 'hydrogen' boilers is individualistic; requires individuals to invest to resolve collective problems; externalises the costs of repairing climate damage effected by fossil fuel corporations onto householders shoulders.

By contrast the District Heating (DH), systems being installed by communities and councils, to distribute cheap heat to consumers synergise entirely with Labour's roots in collective principle, action and achievement.

Kingston-upon-Thames council, in tandem with Thames Water Authority is installing technology to capture waste sewer heat linked to a DH system to heat local hiomes at affordable prices. (Thames Water. England's first sewer-powered domestic heating scheme planned for Kingston. 26.02.2021).

Seaham council with the Coal Authority is moving toward pumping-up geothermally warmed abandoned coal mine flood water and distributing it via DH into wet heating systems. (Seaham Garden Village Mine Energy District Heating Scheme. The Coal Authority. 2020).

Islington council heats a DH scheme with waste underground tunnel heat. (World-first scheme is launched using waste heat from the tube to warm homes two leisure centres and a school in Islington. Islington. 05.03.2020)

West Midlands hospitals are warmed with latent heat from canals. (Jillian Ambrose. West Midlands canals to help heat hospitals in renewable energy drive. The Guardian 18.02.2020) .

Collectivism once overcame difficulties faced by the workforce within the workplace. Now it can overcome difficulties faced by the workforce at home. Collective District Heating can boost standards of living, energy security and climate control for People and Planet.

As Climate Change increasingly disrupts and disaffects growing numbers of people and localities within the 'Global North,' re-alignment of the electorate into just two camps will grow. Deepening divisions between those that do and those that do not, support urgent radical transition to carbon zero will remain. Polarisation of the electorate between those that do and those that do not support a Tory Party transparently set on protecting fossil fuel corporate interests alongside those of other giant corporations like Amazon will increase.

As Labour continues to broaden and deepen policies that prioritise the interests of People and Planet so too will its electoral base broaden and deepen in parallel.

---

## Climate Change and War Restructure our Climate Control Agenda.

The idea of all the Labour-led green activity, employment and equalisation of opportunities across the land, Rachael Reeves conjured up, excites. But will it suffice to secure the extensive, speedy and sustainable attainment of energy security and safety which European war and drought have suddenly and unpredictably pushed to the top of the Climate Agenda?

War has threatened the continuity of supply and affordability of imported energy along with the safety of nuclear supply. The very fact that countries depend upon energy imports inhibits implementation of hard hitting economic sanctions upon their suppliers. Few realised the pace at which Climate Change would advance; the sudden abrupt arrival of violent storms, tornados, floods, heatwaves, droughts, downpours and wildfires. Thousands died just from heat stress in Europe this year. Climate Change cum Crisis begins to outstrip the pace at which solutions are introduced so that speedy attainment of domestic energy security aka independence, has acquired a priori importance.

Will Climate Crisis trounce Energy Security or vica versa? Starmer acknowledges that it might prove necessary to fall back upon coal supplies before he even open' No 10's front door. Alarmingly War is already turning too many countries back to coal in their quest for speedily attained security. The one-fifth of greenhouse gases for which coal still accounts, will rise as fossil fuel preparations become fossil fuel production. The S. W. German Brexbach Plant is set to produce energy from 100,000 tonnes of coal per month by wintertime. Twenty more German coal plants are either restarting or being kept open beyond their scheduled closure dates. Italian Enel SpA plans to convert Italy's largest two power plants from coal into gas are being shelved. Austria is taking its last coal-fired plant out of its Rest Home; the Netherlands cap on coal production has lifted. (De Smog). A viscous circle commences. The greater the consumption of coal, the greater the climate crisis, the more elusive the solutions.

Just as a left-wing leader takes power in Brazil bringing hope that destruction of the crucial carbon sink will diminish, the West is reaches for its comfort blanket: coal.

Suddenly decarbonisation needs to be achieved far faster and sooner than we ever imagined necessary. Labour's 'bridge strategy' establishes true and significant green intent. But recent events might just require more. In our following and final section we discuss modifications – addendum's -that might achieve two principle goals. The first objective is to stay on the bold course Labour have announced: a 2030 deadline. The second is to make the first objective viable by doing more with less – produce more clean electricity for the same investment; initiate more decarbonisation within the same budget.

Attainment of these objectives requires the re-evaluation of the value for money realised by Labour's strategy to enable more climate control per £ invested. As more nations turn to more fossil fuel security to power their economies and warm their citizens the more climate control will be required to 'stand still'. We open by discussing Professor Mark Jacobson's 'slower, heavy, more expensive 'bridge technologies like Carbon Capture and Storage, Nuclear power and Hydrogen Heating. And then move on to discus a range of energy and cost efficient green technologies and systems seemingly suited to the UK. All the time we have Rupert Way's conviction in the back of our mind that the faster transition occurs the greater the savings it effects.

Carbon Capture and Storage, (CCS), offers to technologically replicate and extend our natural carbon cycle in which carbon emissions have been re-absorbed by trees, peat bogs, soil and so

forth. No longer can this natural cycle absorb sufficient quantities of carbon to guarantee climate stability. Carbon Capture and Storage promises to capture atmospheric carbon and store it deep underground.

In Iceland where geology favours carbon storage, 71 carbon capture companies belong to their own industrial trade association. In Squamish, Canada, a prototype plant is making a product out of the captured carbon: fuel -after all we are going to need carbonised fuel for many years to come – aren't we! (Source: The Climate Question. Carbon Capture and Storage. BBC 13.06.2021). The East Coast Cluster, North Eastern England UK promises to build upon Teeside and Humber skill base and land supply to develop CCS in an area emitting "nearly half of carbon emissions from UK industrial clusters" (East Coast Cluster).

Much CCS investment is provided by the wealthy oil industry, accustomed to large-scale project development utilising internal skills and experience which actually began burying carbon in the 1970s. Initially moral justice seems satisfied when an industry that has contributed so much carbon overload finances carbon capture and storage investment. Remember this investment may easily legitimise a continuation of their oil jamboree; those of their coal and gas compatriots too. Why not require them to invest in other cheaper, swifter solutions instead ?

Few industry spokespersons actually pretend CCS is much more than a holding operation to lower carbon levels until renewables catch-up with energy demand. Some, wedded to the idea that around 10-20% of fossil fuelled energy will prove a longer term necessity for those industries that either cannot covert in time or at all, believe it has a long term niche future. CCS is a technology that engenders complacency, despite elongated, unquantifiable lead times that render it altogether unclear if, let alone when, it might impact upon current, let alone historic, carbon levels. Extortionately high costs will also limit its development. Just retrofitting Louisiana's 'Diamond Vault' will cost $900m and probably cut electricity generation by around 30% in the process. It is difficult also, to conceptualise how current water consumption could be doubled in order to satiate the thirst of the beast if and when its up and running full steam ahead. https://www.theguardian.com/environment/2022/oct/15/emissions-capture-carbon-cost-water-electricity?CMP=Share_iOSApp_Other Why it should continue to command investment that could finance cheaper, speedier more sustainable options?

Nuclear power has also become a prime deposit in Labour's Climate Bank. But it doesn't pave the speedy, safe path to energy security and decarbonisation we need to tread in order to overcome our looming and expanding crisis. Nor does it provide cheap energy and ensure people no longer have to choose between food and fuel.

Eye-wateringly expensive like CCS, and involving similarly attenuated lead-times, nuclear power still operates, decades after its inception, without proven long term safe storage facilities for spent fuel; still occasions concerns about operating hazards. War has nowvividly illustrated other serious safety issues. Weaponisation of nuclear plants; even their unintentional damage when situated in the midst of a war zone could have catastrophic

consequences. Europe's largest nuclear power plant is situated in Ukraine in an area of active conflict, and at risk of catastrophic damage. It has also been actively weaponised: its director kidnapped; its boundaries breached by Russian forces. Nuclear safety agencies are on high alert.

Climate change is itself now starting to overtake measures once believed to secure the safe operation of nuclear plants. Drought now depresses river levels once believed sufficiently high and reliable to guarantee the waters needed to cool plants. Along the Rhone-Soane valley and Loiret in France, and the Rhine in Germany previously continuous nuclear energy production now has to be disrupted so that nuclear plants can cool down to a level safe for production. Situating future development in coastal locations simply makes them more vulnerable to attack from the sea.

Safety issues, a history of ever extending lead times and ever escalating construction costs together strongly demonstrate that nuclear power, albeit producing carbon-free energy, will neither speedily buttress national energy security nor speedily lower carbon emissions; lower householders energy bills or the contain the costs of transition to a carbon-free economy.

Hydrogen heating also features in Labour's Plans. De Smog provided an excellent critique of the hydrogen industry lobby and we admit to extensively raiding it. Rachael Reeves' "I'm a massive fan of hydrogen"; quote, prominently displayed in the industries' hydrogen zone at the Labour Party Conference in 2022, is a testament to the success enjoyed by the hydrogen industry's lobbying for its product to be regarded as "a catch-all solution to the UK's low carbon transition".

de Smog maintains that the Hydrogen industry exploited Labour at Conference, pushing 'false solutions to the climate crisis', and offering more expensive and less effective home heating than solar, wind and heat pumps. (see Note 1, below) Cornwall Insight predict hydrogen could raise energy bills by about 70%. Joules' journal's September 2022 review of 32 hydrogen companies, concludes "hydrogen use for domestic heating is less economic, less efficient, more resource intensive" than several low- and no-carbon alternatives, and "associated with larger environmental impacts."

Hydrogen-ready boilers produced by the industry are unlikely to consume anything but gas. No-one can provide a date when green hydrogen production might fuel them. The promise of hydrogen heating will most likely prove an illusion, prolonging our dependence upon fossil fuels like the gas suitable for hydrogen-ready boiler consumption.

Other boilers, boast the industry, can burn a blend of hydrogen and gas. Only 20% of the blend can be hydrogen, an amount which will hardly dent carbon emissions.

Note 1. Considerable difficulties confound extensive heat pump installation, which are not the subject of this discussion. Heat pumps cannot substitute for gas boilers in all homes, being best suited to well-insulated air-tight models. (see for instance: David Hilton. Air Source Heat Pumps: The Ultimate Guide to the Pros and Cons. Housebuilding and Renovation. 29.06.2022). Installation places a substantial cost on householders)

Open Democracy's discovery that two-thirds of new homes in England to the end of March 2022 used gas despite the deadline for gas boiler use to supposedly being 2025 , speaks volumes. Regulation seems to have been patchy as most, non-existent at worst. The industry might just be exploiting weak regulation or expressing its own disbelief in hydrogen's heating future. Either way, householders will be obliged to finance their replacement by 2025 !
https://www.opendemocracy.net/en/new-build-homes-gas-boilers-heat-pumps-developers-lobby-government/?_kx=wtrXuHHaFpwCCLn3BtBNVAnwXBCSy0awD5ByzXR0G9Fl6KlQFey312WGAlYe6UZ_.YjCYwm

---

## Over the Bridge

If CCS, Nuclear and Hydrogen Heating appear less than perfect contenders for swift, cost-effective transition, then what will fit the bill?
Clearly wind and solar power will, as Labour plans, make a significant contribution to low cost energy to power UK homes and industrial operations. So too will the tidal power contained within Labour's energy plan.
In this section we will discuss the advantages these choices offer. And we will bring to the table 'Waste Heat- or readily available heat that is effectively wasted because it simply isn't utilised both of which form a key third of our tripartite approach. Many initiatives taken by climate conscious local Labour authorities and communities concern waste heat and evoke the old adage -'Waste Not Want Not'; dated but still wise.
Another energy source to be discussed here is geothermal power.
All of these are completely renewable.

---

## Solar and wind power

These tackle the Cost of Living Crisis by lowering bills, the Energy Crisis by improving national energy security, and the Climate Crisis by lowering carbon emissions. As Rachael Reeves vision illustrates, they provide a wealth of employment opportunities across the land in green industries producing the green technologies at present imported. They promote levelling-up by bringing wealth and health back to neglected parts of the country.
Rooftop installations can enable homes, industries and public institutions to approach their own energy self-sufficiency, lower their outgoings and carbon emissions and even, with tweaks to the law, retail surpluses to the grid!

Community Energy Enterprises (CEEs), throughout the UK have been installing community solar power across Britain for years. Prevented from retailing surplus energy to the grid in exchange for reasonable rates of remuneration, they have not realised predictions of their substantial potential.
The Local Electricity Bill, drafted by CEEs now has cross-party support of almost half the House

– high time for official Labour Party Energy Policy Support and promises of in-power enactment.

CEEs and Local Authorities are well placed to spearhead rooftop solar development, of which extensive global potential was identified in a recent Cork University study.
Local Authorities like Nottingham and public institutions (Torbay hospital to cite just one example), have pursued rooftop possibilities knowing it makes financial sense to do so. They require support from a future Labour government to extend such innovations.

Problems do exist with weather-dependent energy sources such as solar and wind. Surplus energy can be stored though this is problematic because storage options are limited. Water might be pumped uphill into expansive reservoirs ready to generate energy in its descent, for instance. Or capacious batteries produced incorporating lithium, mostly found in the global south, the extraction of which imposes unacceptable costs on communities and the environment alike. All too often energy administrators simply turn to fossil-fuel favourites like coal and gas for reserve power.
However solutions are appearing. In the Netherlands and Germany a cutting-edge solution is to utilise surplus electricity to produce green hydrogen that presents no storage difficulties. In China an alternative approach might be found Chinese tidal power innovation in the first hybridized solar and tidal plant in the world.

---

## Tidal stream energy

This, despite its abundant potential does not appear to have been conceptualised as the base-load power it is highly qualified to become. There is always high tide somewhere in the UK coastline, regardless of the weather. Its reliable and sufficient.
Tidal turbine, like wind, turbines, can be produced within the UK, in areas starved of investment, opportunity and wealth. The tide could truly turn in their favour.

The last Labour government invested in tidal stream energy research. But under the Coalition government, enthusiasm waned. From 2016 onwards Conservative administrations have turned predominantley to nuclear and off-shore wind. After off-shore wind was re-classified as Marine Energy during Alok Sharmer's Environment Ministership, it competed with Tidal Stream Energy for Marine Energy Funds. More recently the 'British Energy Security Strategy' completely omitted Wave, Ocean Thermal, Ocean Salinity, Tidal Lagoon, Barrage and Temperature Conversion. (OSTEC). The possibility of substituting tidal stream for wind power to generate a requisite additional 5GW of power by 2030 was ignored.

The UK is blessed with particularly strong tidal currents: the best are in Pentland Firth, in St Georges' Channel Anglesey and off the Isle of Wight. Together they could produce 15% of UK energy requirements. Established centres such as The European Marine Energy Centre (EMEC) Ltd., (Orkney 2003); Siemens Test Centre in the Bristol Chanel and SW Energy Park, Cornwall survive, and projects exist in Scotland and Wales.

**Tidal Stream Energy could replace both fossil and nuclear power baseloads.** Costs have fallen steadily. A 2021 projection predicted that economies of scale and increased unit production will effect further falls. Skills in turbine manufacture and design exist not least employed in wind turbine work.

The UK remains a world leader despite a cooling of governmental enthusiasm, and the developments Labour propose could place it in a strong position within a market projected to be worth £130 billion. **Investment of just a fraction of the nuclear budget could realise 24GW of tidal stream power by 2050.**

---

## Geothermal power

Geothermal power missed the boat. It received no acclaim in Labour's 2022 Conference policy pronouncements.
Geothermal plants generally operate 90% of the time because they do not rely upon weather-dependent energy sources. The cleanest natural gas plants still produce six times the carbon dioxide emitted from geothermal plants (which are eminently affordable).

The Union of Concerned Scientists calculate that binary geothermal power plants are four times cheaper to build than nuclear alternatives and have none of the decommissioning and fuel handling costs incurred by nuclear ones. They can be incrementally expanded, 20-30 Mw at a time (What is Geothermal Energy? The Complete Guide. The Switch. Renewable Energy. 2021).

Twenty countries now generate geothermal electricity. Italy developed the earliest plant in 1904. The USA now operates many including the world's largest. In 2019 geysers from New Mexico to Utah generated 16 billion kw hours of electricity ie 0.4% of all American energy. In Iceland twenty-five percent of national energy is geothermal. Their Reykjavik plant generates electricity and also directly heats and cools buildings. **In Denmark deep groundwater resources are estimated to possess sufficient capacity to heat half the country.**

---

## A New Grid

Decentralised geothermal power generation synergises completely with tendencies in a grid that is already shape-shifting in line with more localised solar and wind power production. The UK grid is outdated and innefficient in urgent need of attention. Grid outlooks, some of which have been featured in The Conservation, are now investigating models wherein self-contained but interconnected localised grids can isolate failing modules and so limit damage spread.

Interactivity is an important consideration, especially the kind whose rates reflect the nature of the contributor and participation charges reflect the turnover of the participator.

---

## A National Heat Strategy

**Diversity is essential to sustainability, energy security and speedy transition. Extending the range of green and renewable energy options Labour embraces to include waste, latent and geothermal heat would necessitate no dramatic change of policy direction and certainly no change in intent. But it would underpin the ambitious results Labour aims to achieve in its 2030 target. A National Heat Strategy speaks directly to all three of Ed Miliband's Energy, Cost of Living and Climate Crises. Boosting Lisa Nandy and Rachael Reeves' Levelling-Up policies, it raises-up energy efficiency, brings down energy consumption, global production costs and consumer prices.**

**Heat is wasted** from homes, industries and institutions – underground train tunnels, sewers, electricity transformer stations, power stations, and high energy industries in particular like the steel industry and data storage centres. Its also wasted in the sense that heat stores exist but are not used – heat in sewers, heat in disused coal mine tunnel flood water, latent marine and freshwater heat in canals, rivers and lakes and geothermal aquifers.

Heat "is still delivered by burning gas oil and coal or by electricity consumption. Only about 1.77% of energy consumption (for heat only) is that sold directly as heat from combined heat and power schemes. The UK's approach to de-carbonising heat is to switch domestic and other heat production away from direct use of fossil fuels to electricity. In this way greenhouse gases can be captured at source – the power station. However electricity production from gas at the power station is only about 35% efficient; the remaining 65% of energy liberated by burning the gas goes up the chimney as unused heat". (Nadia Narvayan, John Gulyas and Charlotte Adams . Is the UK in Hot Water? Geoscientist 28(9) 10-15, 2018).

Fifty percent of UK energy demand is for energy in the form of heat. This tells us just how big an impact waste heat utilisation could exert upon our energy consumption levels and how great an impact, also, it could have upon our energy security. The less energy we need to consume in order to meet demands, the easier it becomes to supply it.

**Retrofitting**

Around one-third of the UK's carbon emissions are attributable to domestic heating alone. Ed Miliband's retrofitting programme would do much to lower these emissions because less heat-escape means less heat needs to be produced so less fuel need to be consumed.

**Combined Heat and Power plants** greatly improve the efficiency with which raw fuel is converted into consumable energy, lowering the amount of energy that needs to be consumed in order to meet a certain value. Coal-fired power stations only achieve around 37% efficiency in their conversion of raw power into electric, power. Gas achieves 56-60%, nuclear 55% and wind 30-45% .

Combined Heat and Power (CHP), turbines would greatly improve these efficiency levels, reducing the amount of primary energy that needs to be consumed in order to meet demand, providing more for less!

**UK councils have taken steps to harness and demonstrate the potential of waste heat**

As long ago as 2010 the Greater London Authority produced a London Heat Map and a London Heat Network Manual which provided guidance for local authorities, planners and energy service companies on the development and delivery of heat networks including district heating and decarbonising the electric grid based upon projections from the Department of |Energy and Climate Change and Government Standing Assessment Procedure. (https://data.london.gov.uk/dataset/london-heat-map. What happened?

**Exemplary passive-haus housing developments** have been delivered by Norwich and York authorities. They prevent heat waste and have produced such warm houses that some tenants don't turn on the heating!

**Waste Underground Tunnel Heat** was harnessed and distributed via a district heating scheme by Islington council. It was financed by Kwasi Kwarteng's allocation of £20million as recently as 2020 to nine heat schemes in the South East and the Midlands. (Jillian Ambrose. West Midlands Canals to Help Heat Hospitals in renewable energy drive. The Guardian 18.02.2022).

**Public sewerage heat** has begun to be harnessed from the UK's 16 billion litres of sewerage wastewater dumped in sewers daily. It could yield 20twh of heat per annum – sufficient to provide space heating and hot water for 1.6 million homes.
Kingston upon Thames council in conjunction with Thames Water is developing a scheme to capture sewer heat and distribute it via district heating. The success of its initiative at its smallest plant: Hogsmill, is predicted to realise 1.5Twh of heat energy and could open the floodgates to more extensive heat recovery, and even power generation.

**Waste Heat to Power (WHTP)** can generate in-house electricity or be used to heat the industrial premises in which it is produced, and others nearby. Industrial power bills can fall – though the technology may not be appropriate for small-scale operations. Considerable reductions in energy resource consumption could be realised by applying the system to Hi-energy industry consumers like steel plants and IT data storage facilities.
(It is worth noting at this juncture that industrial power can also be generated in-house, from industrial product wastes. Heinneken aims for electrical self-sufficiency by generating power from waste rice husk fuel).

**Latent Heat**

Freshwater latent heat is largely untapped in the UK despite published government research that details its potential to satisfy adjacent residential heat demands. Urban areas like Nottingham, Hereford, Pontefract and London whose adjacent rivers boast over 100MW of total capacity might benefit. The heat demands of smaller riverside settlements like Chertsy, Egham, Goole, Gainsborough, Tewkesbury, Bewdly, Ross-on-Wye, Wallingford and Selby which fall beneath 500GW per annum, could be met by latent river water heat.

Kwasi Kwarteng's 2020 renwable energy finance also funded the harnessing of West Midlands Canal heat to benefit local hospitals.

**Geothermal Heat**

Geothermal heat by-passes the need for power generation. Geothermally warmed it lies untapped, beneath our feet. The government has favoured shallow geothermal source heat pumps. They are prohibitively expensive and are truly suited only to well insulated homes.

Yet **heat can be directly extracted from geothermally warmed water – sometimes at temperatures hot enough to heat homes without prior upgrading.** This is available generally from deep drilled boreholes. Lower temperature, geothermally warmed 'flood' water lies less deeply, in the disused coal mine tunnels that lie beneath 25% of UK homes. It can be pumped up to the surface, temperature-up-graded as necessary, piped into wet central heating systems via District Heating networks, then simply dropped back down for re-heating when cooled.

One such scheme operates in Asturis, Northern Spain. Another is under development at Seaham, North-East England under the auspices of the Coal Authority where new housing will be heated by mine hot water. A Gateshead project is also underway financed by the government Heat Networks Investment Project. (HNIP).

On the continent, geothermal heat extraction, often by deep or shallow drilling, is on the rise. It is popular in cities for fuelling new collective district heating schemes and used to turn existing fossil-fuelled schemes into green.
Paris for instance is drilling on its outskirts to replace fossil-fuelled district heating with fossil-free. Vienna, Pisa and Sienna have schemes; Baden and Alsace are pursuing possibilities.

Geothermal energy has not been entirely trouble-free. In Basel, Switzerland deep drilling was halted because of earthquake tremors. But an alternative approach has been designed to to enable drilling to re-commence. Nearby across the border in Germany homes are being warmed by newly installed schemes. Others are planned.

Granite deposits are believed to signal prime geothermal hot water aquifer territory. Geothermal heat is profiting Eden Project Domes and administration buildings, and plans are afoot to provide domestic heating in nearby St Austell too.

Deep-drilled aquifers yield the highest temperature water. But geoscience insists that useful geothermal heat can be obtained from a far wider spatial spread by shallow drilling for water of 30-100 degrees. This is achievable utilising existing equipment.

In 2018 a Durham University geological study concluded that heat could be obtained from limestone karst rock, which was excluded from the preceding Geological Society study in 1986. This meant that geothermal heat could satisfy demand for heat at current levels for the next 100 years, saving 160 million tonnes of CO2 annual emissions. Exploration may find plentiful karst deposits. Recently 50% of Croatia's rock was found to be limestone karst.

A National Heat Srategy would exponentially expand new economic activity and employment opportunity upwards and outwards. It would spread green jobs and wealth yet further afield than already announced by Labour's Chancellor-in Waiting Rachael Reeves, and boost the endeavours of Lisa Nandy, Labour's Shadow Secretary for Levelling-Up.
Limestone Pavement outcrop areas in the Yorkshire Dales, Buxton Spa, Matlock Spa, Bath's 46 degree thermal spa, Hotwells, Bristol, Bulith Wells, Welton, Lincolnshire north of Lincoln and in the East Midlands would profit.
The tapping of mine water heat would extend economic regeneration through the Midlands, Derbyshire, the South-East, Wales, NE England and Central Scotland's coal belt. Coal mines could once more become the hub of activity in areas decimated by their loss and the faith in Labour renewed in areas like Blyth Valley, Bolsover Leigh and Batteslaw. CHP turbine manufacture would draw upon our heavy engineering industrial sector skills, capacity, experience and traditions, still concentrated in North-East England.

Diversion of just some of Labour's intended nuclear and carbon capture and storage investment into a comprehensive but relatively low cost National Heat Strategy, would bring benefits to greater numbers of people and localities than envisaged in the Levelling-Up strategies of Rachael Reeves and Lisa Nandy. More skills and production would come into into play in more part of the UK.
A national heat strategy for the UK offers the prospect of doing more for less – an appealing idea so favoured by the French Navi Radou, author of The Frugal Economy.

A three pronged strategy preventing heat loss, harnessing and distributing waste heat and extracting untapped geothermal and latent heat sources would slash the amount of power that needed to be generated at a stroke.
Energy efficiency would improve way beyond its current levels. Heat would be cheap, reducing the need to generate energy. The use of our heat sources would enhance domestic energy security.

---

## Conclusion

Leadership policy pronouncements at the 2022 Labour Party Conference pointed in positive directions. They were expressly designed to tackle the interconnected Energy, Climate and Cost of Living Crises, which Ed Miliband was concerned to highlight. Rachael Reeves determinedly linked green innovation with levelling up, promising green innovation, green jobs and green revival of areas deserted by capital.
Keir Starmer 'came out' as decidedly Green, promising the earth much.

As a Labour government approaches, Climate Change turns into a crisis, invading more and more peoples' lives with floods, drought, extreme heat, wildfires, disease and disaster.
War presents new hazards to power plants, especially nuclear ones and seriously threatens national energy security.

Speed has become of the essence. Policy portfolios need to be flexible in order to adequately respond to quickly changing situations. Checks and amendments are needed to ensure policies can deliver their promises to an anxious electorate.
We have brought to the table ideas meant to produce more green and renewable energy for a similar budget, and to meet the new priority: speed.

Unless we can produce increasing volumes of green energy as soon as possible, nation states will turn to 'black gold' to secure energy, preserve industrial production and economic equilibrium.

Our amendments focus upon the ability of a National Heat Plan and geothermal power to help expedite national energy security, output and decarbonisation. They predominantly reflect democratic initiatives taken by communities and councils here and on mainland Europe in the interests of decarbonisation and community needs.

Heat initiatives are by their very nature localised, sustaining decenterist democracy. They are designed to bolster, not replace, Conference commitments to solar, wind and tidal energies.
At the same time however we have questioned the value of slower, costlier nuclear power, hydrogen heating and CCS technologies. Waste, latent and geothermal heat offer, we believe, considerable potential to contract the amount of power that has to be generated in order to meet energy demands, increase energy efficiencies, lower costs, improve value for money and meet consumer demands for affordable safe green energy.

They also speak to shadow cabinet prioritisation of energy policies that also tackle security and the cost of living crisis, creating new jobs, - sometimes using old skills and production expertise.
And at the end of a very long day, they do it our way: collectively.

We trust these observations will be taken in the constructive way they are intended, and feed into a labour movement debate during the coming year which will be a critical one for Labour’s electoral prospects and for those of people and the planet.

---

## Future issues

In future the *Newsletter* will feature projects, proposals and policy along with Solar, On and Off-Shore Wind Power, District Heating from France to Denmark and at home in Gateshead, and heat sources for District Heating – biomass, geothermal, waste and latent heat

We will also publicise relevant forthcoming events here, such as uk2zero's own Renewable Energy Speaker Series, and distribute news about research, resources and innovations undertaken by councils, communities and

governments in the UK and elsewhere. This will include uk2zero political climate education and discussion papers.

We further intend producing updates on many net zero issues: recycling and re-use, re-wilding, construction, transport.

---

## Uk2zero Renewable Energy Speaker Series

uk2zero is a GND Campaign Group within Labour International CLP.

We promote net zero innovations within the labour movement.

Our **renewable energy speaker series** creates opportunities for debate and produces green-socialist educational resources.

***Previous meetings:***

### Tidal Energy

The UK is surrounded by sea. More wave and tidal energy devices have been deployed in the UK waters than the rest of the world combined. Tidal flows and waves are significant resources and we should be developing ways to exploit them far more than we do at present. Yet the recent publication of the British Energy Security Strategy BESS,07.04.2022, omits mention of marine energy, promoting offshore wind and nuclear instead.

**Richard Marks**, a former civil engineer, managed the development of a Worldwide Green Ports initiative to make seaports more sustainable when he worked for a Dutch-owned consultancy. Richard authored a report for East Anglia Offshore Wind on suitable North Sea port facilities and advised teams planning offshore wind farms in UK waters. He presented Tidal Stream Potential to a highly appreciative audience.

Available on video

### Offshore Wind Power

The UK is rich in Offshore Wind Power potential. Favoured by government, it has been re-classified as Marine Energy, so becoming eligible for additional development finance. But storage issues remain unresolved for this weather-dependent resource and government over-eagerly pursues nuclear power and remains over-attached to oil and gas fossil fuels, 'for the sake of UK energy security'.

**Dr Christopher Golightly** worked in the UK for a civil engineering consultancy; spent three years in Bradford University securing a post doctoral award; shifted to the Netherlands as a Senior Geotechnical Engineer for Shell and BP identifying locations for pipelines and platforms. By 2010 he was established as an offshore renewable energy consultant. He presented an exciting presentation revealing

extensive on-going off-shore wind developments, receiving a number of incisive questions.

Shortly available on video

***Upcoming meetings:***

**Welsh Marine Energy**

Presented by Jack Shepard, member of Welsh Synedd
Time and date to be confirmed.

Wales has quasi independent status within the UK. Its own government, the Welsh Senedd, has been highly innovative in its net zero quest, ranking 1st in the UK and 2nd in Europe for its Recycling achievements. It has gone from strength to strengthon sustainable housing design - its latest model is constructed from slot together 'lego' bricks which themselves insulate the property. Electricity is generated from waste food biomass and now the Senedd is moving forward on lagoon energy.

Jack Shephard is a Welsh Senedd Labour Party member for a Alyn and Deeside northern welsh constituency. He has agreed to return to LI to address one of our uk2zero speaker events on Welsh Marine Energy.

This is very exciting because the Swansea Bay Tidal Lagoon project received a Development Consent Order in 2015 and looks likely to go ahead soonest. This will mean our series will include two presentations on Tidal Marine Energy alone and we hope to shortly confirm a speaker on wave energy for our November slot; maybe even someone on harnessing latent seawater heat.

Apply to participate in this event to uk.to.zero.gmail

Video footage will be available after the event.

**Mine Water Heat**

Saturday December 3rd 14.00 Charlotte Adams.

Uk2zero has been enthusiastic about the harnessing of mine water heat since its formation. The possibilities of satisfying the demand for affordable heat with untapped geothermally heated water that could be reheated when cooled was extremely attractive.

It delivered the 'perfect circle'; a sustainable supply of heat. It drew attention to the possibilities of harnessing further sources both of untapped geothermal heat and other wasted, not necessarily geothermally produced, heat, in other places.

We are very excited to be welcoming Charlotte Adams, current Lead Manager for Mine Water Heat in the UK Coal Authority. Previously we had read an article Charlotte co-authored at Durham, on geothermal heat in limestone karst and

other geological sources. A very high percentage of UK housing is located above disused flooded coal mines and a high percentage of UK energy demand is for heat. So this is not to be missed.

We will keep you posted on developments in this series. We are enthusiastically considering extending it with multi-dimensional events – roundtables with participants from different renewables; longer events with several speaker componants on different aspects of tidal stream energy and so forth. What would you like included ? Contact Frankie Ashton, uk2zero convenor on uk.to.zero@gmail.com.

---